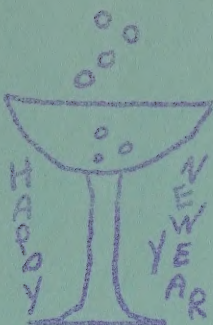


Grid Leaks



JANUARY 1971 VOL. XXI NO. I

IN THIS ISSUE

THE PROFESSOR GOES MAD.....a more than usual contribution by that grand old gentleman
a build it your self simple, cheap audio generator.....assorted graffiti and other stuff

A SEASONAL THOUGHT

PEACE ON EARTH, THE CAROLS SAY, BUT UNLESS THE FOULING CEASE, ON SOME NOT FAR-OFF
CHRISTMAS DAY, THERE'LL BE NO EARTH TO HAVE THAT PEACE ON.

WAIT NOT FOR THE JUDGEMENT DAY, FOR IT COMES WITH EVERY DEED.

Wahoo

FIVE NEW MEMBERS

YIPPEE

WE would like to take this opportunity to welcome into our midst five new members. Mr. John Harvey W8HTM of ann arbor, who has also accepted the post of our new EC for Washtenaw County. Mr. Harvey works in the County building and is conveniently close to the radio equipment of the Civil Defense. Also joining at the december meeting were: Ted Poolwil of Ann Arbor is working on his Novice, John Rose of Ann Arbor, also working on his Novice, Mr. Charles Campbell of Ann Arbor, also working on a license, and Mr. Dan C. Gooding of Ypsilanti, who is also known as WB8FCZ. If you haven't been to a meeting lately, you've been missing a lot, ergo last meeting two excellent movies from ma bell.

OPEN HOUSE



AT OUR NEXT MEETING: JANUARY 8th, 1971. WHERE: RED CROSS BUILDING 2729 PACKARD RD.
ANN ARBOR, MICH. WHEN: 2000 EST (8:00 PM). REFRESHMENTS. SEE THE NEW SNACK AND
RADIO GOODIES. BRING A WIFE, BRING A GIRL FRIEND, OR BRING BOTH.



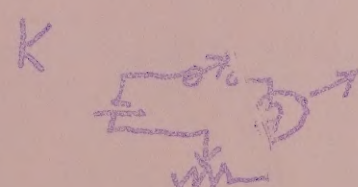
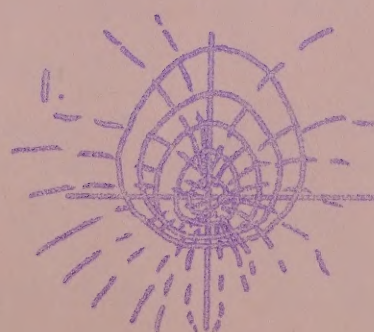
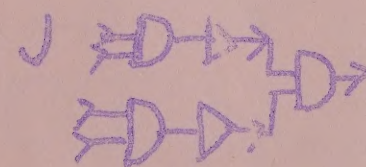
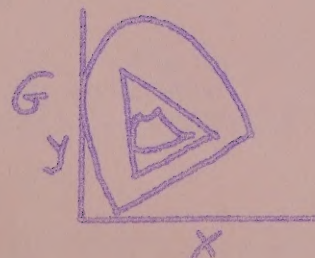
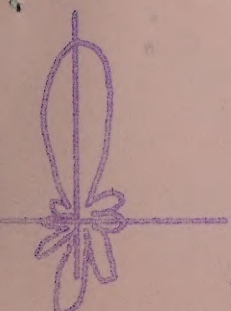
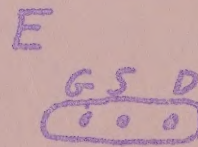
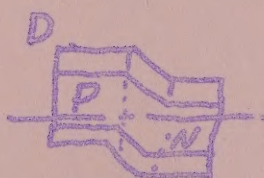
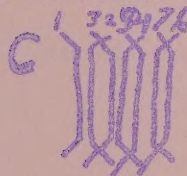
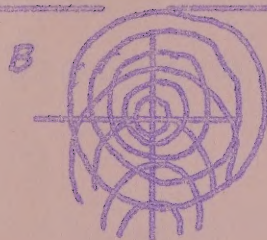
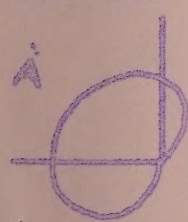
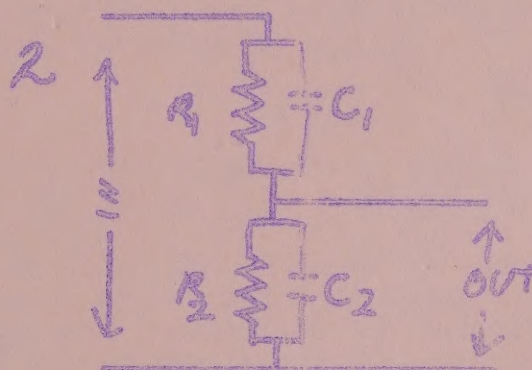
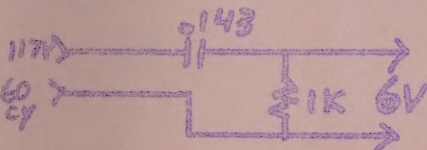
The professor went stark raving mad, and along with a few new year's resolutions (such as promising not to tell his wife that his new Collins only cost \$100, and the new tower \$75) whipped up a few goodies for this month: try a hand at these mind benders:

A clean 6 volt 60 cycle test signal was needed for an industrial circuit. The old dodge of using a reactive drop of a capacitor to reduce the 117 v line to 6 was tried. This method uses a capacitor instead of a heat producing resistor, or expensive transformer. The resistor and capacitor form a voltage divider, the reactance providing the necessary voltage drop. This circuit was used on a slightly nedsy power line. The 117 volt waveform looked good but the output waveform looked terrible on a scope. Why?

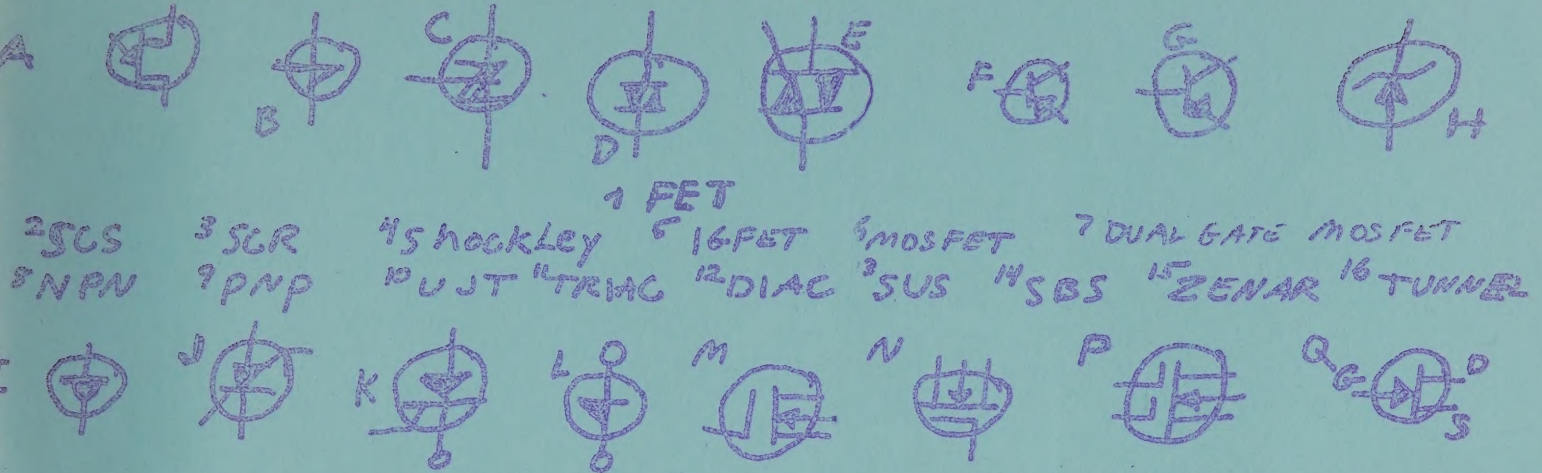
The attenuator in the diagram is designed so that the ratio of the output voltage to input voltage is INDEPENDENT of the frequency of the input. What restriction does this place on the values of the components?

Now that you've skipped through the easy ones, try these: Match the terms with the pictures.

- | | | | | |
|--------------|----------------|----------|---------------|-----------------|
| 1 Basing | 3 Chromaticity | 5 Circle | 8 Directivity | 10 Energy Level |
| 2 Logic Flow | 4 Nyquist | 6 Rieke | 7 Venn | 11 schematic |



Match the schematic symbols with the proper names:



Answers. 1. A capacitor's reactance decreases with increasing frequency. The high frequency noise and harmonics on the power line (almost invisible on the 117 v input) saw a much smaller reactance than did the 60 cycle ac did, and passed muchly unimpeded. This "amplified" the noise in respect to the ac waveform. It is important that a clean input waveform be used in this type of circuit, or else the output will be noisy.

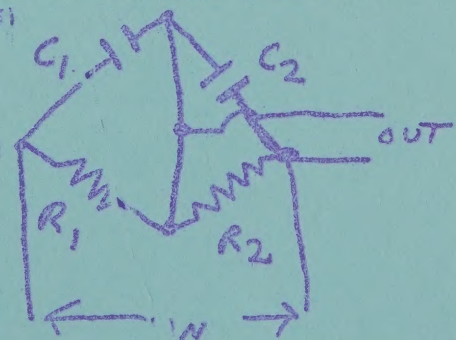
2. First, where frequency is zero, the capacitive reactance of C1 and C2 become infinite, and the circuit reduces to two resistors with the attenuation factor $(R1 + R2)/R2$. At the opposite extreme, where frequency approaches infinity, the circuit reduces essentially to two capacitors with the attenuation factor of:

$$\frac{\frac{1}{C1} + \frac{1}{C2}}{\frac{1}{C1}} \text{ equals } \frac{C1 + C2}{C1}$$

The circuit will be independent of frequency if and only if the results at the two extremes of the relationship form: $\frac{C1 + C2}{C1} \text{ equals } \frac{R1 + R2}{R2}$

or: $R2C1 + R2C2 \text{ equals } R1C1 + R2C1$. The $R1C1$ term falls on each side of the equals sign, so it drops out, so the attenuator meets the requirement if the component values comply with the relationship: $R1C1 \text{ equals } R2C2$. (It is somewhat easier to understand if we redraw the circuit as a bridge like this)

(the professor has a thing about bridges)



3. 1-E, 2-J, 3-G, 4-A, 5-I, 6-B, 7-H, 8-F, 9-C
10-D, 11-K

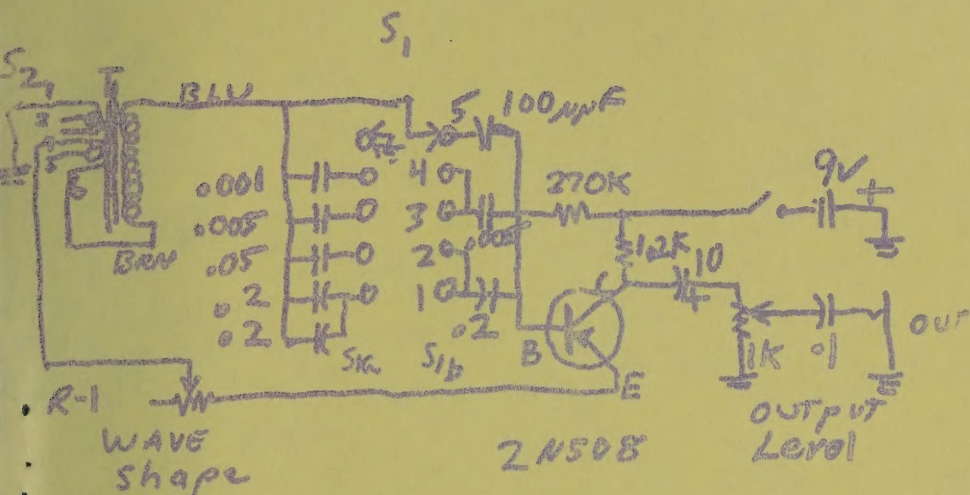
4. A-UJT, B-SUS, C-SBS, D-DIAC, E-TRIAC, F-PNP, G-NPN, H-MOSFET, I-JFET, J-TUNNEL, K-SCS, L-SCR, M-SHOCKLEY, N-and O-IGFET OR MOSFET, P-Dual Gate, Q-FET

GRAPEVINE

IT HAS HEARD THROUGH THE GRAPEVINE THAT: Mr. Palmer of the Washington county CD purchased for the club, a new tower, rotor and coax cables. I'm sure that come the first warm day we had better out in the base. Any Volunteers?

BUILD IT YOURSELF

A simple but good, cheap but efficient audio generator. A non critical circuit easily built in most anything from sardine can (large) to a cigar box. Total cost: Less than \$10.
Build it any way you fancy. easy to do. SQUARE and SINE wave out
All resistors $\frac{1}{2}$ watt. All capacitors low voltage ceramic.



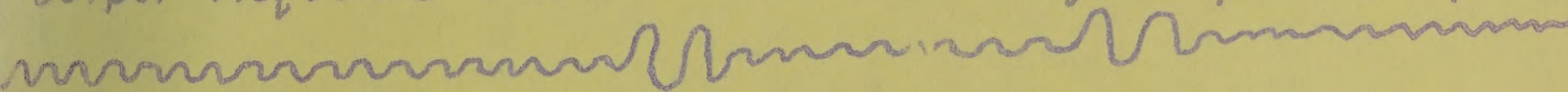
T₁ - UNIVERSAL OUTPUT XFER
LAFAYETTE TR-12 OR EQUIV

S₁ - 2 pol 5 pos Rotary

S₂ - 1 pol 5 pos Rotary

adjust S₂ and R₁
TO provide DESIRED
WAVEFORM

OUTPUT Frequencies with values shown 100 Hz, 200 Hz, 1 KC, 2 KC, 10 KC



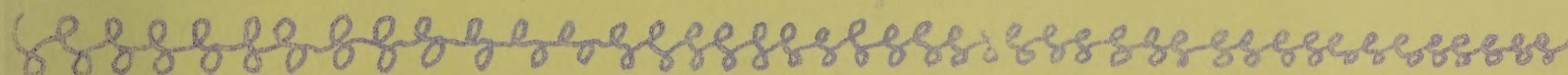
PLEASE : CHECK YOUR ADDRESS ON

THE COVER: IF ITS NOT CORRECT

DROP A CARD TO THE EDITOR NOTING ANY

CORRECTIONS -OR COME TO THE MEETING AND EYEBALL

THE INFO. TNX 73's & 88's HR



BUILD IT YOURSELF? OR BUY READY MADE

My ears have noticed a certain lack of the comment: "Yeah O the equipment here is homebrew in a coffee can with an antenna strung between the house and the clothes pole in the neighbors yard." It seems that more and more hams are buying ready to plug and play goodies, and building less scratch equipment. Obviously, the new gear put out by Swan, Collins, Drake, etc, is very lovely, and the XYL doesn't gripe about how sloppy the shack is when its nicely decorated with a TR-4 to S line, but it doesn't seem quite HAM to have all professional equipment. It is impressive to see, and of course it always works well. But, there is a certain pride when you build it yourself (especially when it works), even if it isn't state of the art. There are many articles in the various magazines, and ham technical manuals which offer state of the art projects, many of which are not difficult to build. I would be interested in knowing if any club members have any homebrew (not moonshine fellas) and would like to pass along the info to the new comers who might like to build some of their own equipment. Perhaps the down swing in homebrewing has been from a lack of attention to teach basic skills which used to be the mainstay of the amateur service (how many of us could build a transmitter from an AC-DC radio in an emergency? There are many highly skilled technicians and engineers in our ranks, and I think an effort should be made to acquaint newcomers with the necessary skills to improvise, devise, and build their own. Its a valuable asset and possible a good club project to stir more interest in Ham radio vs CB.

